

A quicker drink

Some retailers do better than others at creating a smooth supply chain and logistics function. Value-stream mapping, delivery planning and functional packaging all play a part in getting goods to the shelf faster.



by Ruari McCallion



There are various challenges involved in getting items onto the grocery shelves. Among them is traffic congestion – a survey undertaken by Scala Logistics Consulting on behalf of the UK’s Department for Transport (DfT) a few years ago found that congestion on Britain’s roads during Monday-Friday peak hours had reduced and one of the primary reasons is interesting: Sunday supermarket opening. Around 18 per cent of primary and a quarter of all secondary deliveries now take place at the weekends. However, the survey found that traffic congestion still contributes 22 per cent of delays in food distribution and 17 per cent of all holdups in drinks deliveries. Driver availability and collection problems also figure but the major contributor is ‘own company actions’ or unspecified ‘delivery problem’. They make up 61 per cent overall and 69 per cent in the drinks sector. The figure included pubs, bars and restaurants, which are smaller and less conveniently located than large supermarkets, but the numbers remain staggeringly high. Recipients seem to be more responsible than logistics organisations but there is room for improvement across the whole value chain.

“It took a can of soft drink nearly a year to get from its point of origin to the supermarket shelf.”

The grocery industry has been exploring various ideas for progress for well over a decade. Some apparently attractive options have not delivered anything like their promises – internet shopping, in particular. Initiatives that initially delivered savings, such as B2B auctions, saw gains evaporate as vendors pulled back from endless undercutting. While the model of bigger plants, making standardised products for whole regions of Europe has delivered some gains from economies of scale – and will continue to do so in developing markets – maturing markets find, fairly quickly, that improvements grind to a halt and, sometimes, go into reverse. One of the reasons, put forward by Prof Daniel T Jones, the head of the Lean Enterprise Academy and co-author of ‘The Machine that Changed the World’, is that the predominant focus of all parties involved is on their own piece of the whole.

Nearly a year from mine to shelf

Optimising the entire value chain requires looking at the whole picture and developing effective collaboration. In case there is any doubt about that, consider the case of a can of soft drink. When Jones and his team undertook a value-stream mapping exercise with one of Europe’s leading supermarket retailers, they discovered that it took 319 days to move from the ‘mine’ (including metal, packaging and ingredients sources) to the store. That is nearly a whole year, only two hours of which was spent making and filling the can.

“Of 40,000 food lines, the top 1,000 account for 75 per cent of sales.”

Tesco, the biggest UK retailer and now one of the largest in Europe, has achieved significant growth in market share and profitability over the past 10 years. At the heart of its successes is a continuing focus on process improvement. Between 1983 and 1996 the company engaged in modernizing its supply chain, introducing POS scanning, centralised automated ordering, centralised distribution, automated warehouse control and electronic data interface (EDI) with leading suppliers. It cut lead time to stores from between a week and a fortnight to just two days; that from suppliers came down from nearly three weeks to just three days. It cut stockholding by nearly half and simultaneously increased its product range eight-fold, from 5,000 SKUs (stock keeping units) to around 40,000. The drive to improvement was continued by looking around for the best example of supply chain management; Tesco found it by following principles but from the auto industry – specifically, the Toyota production system. →



1. Traffic congestion contributes to 22% of all delays in food distribution.
 2. It will be almost a year before the finished can makes it from the mine to the supermarket shelf.
 3. Prof Daniel T Jones, head of the Lead Enterprise Academy UK.
 4. Tesco applied lessons of Lean Manufacturing to its supply chain.





5. After their long journey, soft drink cans arrive at the shelf.
6. A value stream map shows the complexity of the journey and delay points.

→ The value stream map (Fig 6) was synthesised from a number of products but is typified by a can of soft drink. It begins to give an idea of how the unused hours mount up.

In summary, there are two input pathways, ingredients come from the farm; the can starts at the mine, and the forest or oil rig originate packaging, board or plastic. They meet where the product is processed before being stored at the manufacturer's national distribution centre (NDC). It goes from there to the retailer's regional distribution centre (RDC) and on to the supermarket. The product stops pretty much everywhere along the chain, adding cost but not value. The can is shipped nine times and touched no less than 170 times – before the shopper takes it home. For most of the last 20 to 60 days (depending on whether fast-moving or slow-moving) it was sitting in one of a total of seven different stocking points.

Add information flows up and down the chain and things get really complicated. Supermarkets will try to make things flow more smoothly and evenly across the chain by adopting sophisticated demand forecasting models, which they then disrupt by throwing in special offers. Long lead times, fluctuating demand and forecasts based on second-guessing and subject to interference lead to order variability, building for stock and the retention of excess capacity. The market may talk about 'fast-moving consumer goods' but the value chain moves anything but fast.

Not so fast-moving

The majority of stock in a superstore is actually quite slow-moving. Of maybe 40,000 food lines, the top 1,000 are likely to account for 75 per cent of sales, according to Jones' research. That creates a quandary for supplies and logistics. The supermarkets want rapid response and full availability across the whole range, which means that RDCs, which should be cross-docking operations, still hold stocks; checking, putting away, then picking and loading, becomes the norm. Packaging suppliers have come up with ways to boost efficiency. Take a look at any supermarket shelf today and the majority of products are sitting in packaging that's designed to be used for display and to make unloading easier.

"We've seen growth in point-of-sale (POS) and easy shelf-store products," D S Smith Packaging recently said. "The supermarkets have said, often, that their biggest distribution costs are in the last 100 metres, from the truck to the shelf. They require that they will never be out of stock of anything, that goods can be easily identified by the customer, and they have their own 'two-second rule': they want goods out of the dolly and on the shelf in two seconds." This requires smaller, easy to open packs, with distinctive, colourful designs. The change of emphasis has required changes of products and production.

More functional packaging

Warehouse operators may have noticed that the proportion of die-cut products has grown, as has the amount and diversity of printed applications. On the other hand, they may not, as some ingenious designs mean that pallets full of products are not opened until they reach the supermarket. As far back as 2002, Linpac introduced a corrugated box the size of a pallet, which was injected with foam that surrounded the product and protected it during transit. At the store, the fully-recyclable foam is simply cut away. DS Smith Speciality Packaging's Loadmaster is a pallet pack that incorporates shelves and trays to form instant display units; it can be delivered complete to the supermarket floor. The unit is made up from a series of trays with interlocking divisions to create lateral and vertical strength.

Not a magic bullet

RFID (radio frequency identification) tags have been a help in track-and-trace in food production but they have been seen as more than that, as a kind of 'magic bullet' that will solve all warehousing problems. Warehouses organised along 'chaos theory' lines, with no fixed locations for stock and multiple storage points for each item, can look appealing if goods are mixed and frequently change but they lead to time-consuming 'treasure hunts' for order fulfilment. As RFID can broadcast the location of any individual item, then such wastes of time will, surely become a thing of the past. Prof Jones thinks the answer is actually a lot simpler than that: set the warehouse system up properly in the first place. Perhaps strangely, one of the world's leading RFID vendors agrees.

"You need solid warehouse practices, good flow in and out, good people and good processes before you go on to RFID."

"You have to get your house in order first," a Zebra Tech spokesperson said recently. "You need solid warehouse practices, good flow in and out, good people and good processes. Before you go on to RFID you should implement a barcode system, which delivers out of the box. There are lots of people around with experience of barcodes and that isn't the case with RFID." Business strategy consultancy Procertis has said that RFID has the ability to provide real



7. DS Smith Speciality Packaging's Loadmaster is a pallet pack that incorporates shelves and trays to form instant display units. (Image courtesy of DS Smith Packaging) www.dssmith-packaging.co.uk

time movement information and recognition of complex products, enable the re-routing of perishables and the recording of complex information on shelf life, but all that is nothing without an effective foundation. It improves the quality of ordering on the warehouse but good warehouse organisation is the key.

Collaborate to improve

Materials handling is a crucial part of the supply chain but it does not stand alone, any more than packaging, manufacturing or transport. As Tesco demonstrated, it is necessary to look at the whole picture and to engage in proper collaboration, in order that warehouses can be effectively managed and the supply chain does not become 'pregnant with inventory'. Many industries now use the automotive route of precise collection and delivery windows with a limited tolerance, which requires a disciplined approach from all parties. For retailers this is a challenge since demand planning driven by sales forecasts remains highly volatile and impacted by many external factors which are difficult to cater for – not least, the public's ever-changing tastes! ■

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6. The value stream map

